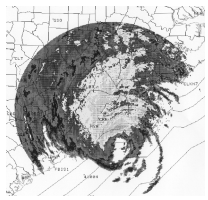
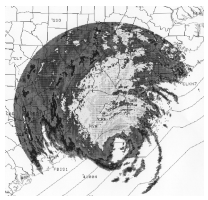


Carolina Skies



Hurricane Floyd September 15-16, 1999

National Weather Service, Wilmington, NC **Spring 2002**

Preparing for Hurricane Season

The Real Militia - SkyWarn

Our forefathers described the right to defend ourselves and our neighbors. We feel the forefathers, in true militia spirit, would have approved of SkyWarn.

Trained volunteer spotters, bearing not weapons, but instead telephones and Ham radios, serve their neighbors by giving reports when we are under attack by severe weather. The reports are used by NWS staff using radar and other technology to know the enemy better, warning communities yet to be hit.

When we go to war against severe weather, hurricanes or flooding, we deeply appreciate the spirit of cooperation of Skywarn spotters - we have a common enemy, and we work together to minimize the threat.

To report severe weather, call 1-800-697-3901, and thanks!

Carolina Marine Advisory Committee (CMAC) Holds First Meeting

On Wednesday April 10, 2002, the National Weather Service (NWS) in Wilmington, NC and members of the local marine community met to discuss marine weather issues for the Carolinas. The CMAC is comprised of people who represent the diverse marine community that exists in NWS Wilmington's marine area of responsibiltiy. The committee is represented by commercial fishermen, fishing clubs, the Cape Fear Descenders Diving Club, NC State Ports, the United States Coast Guard/Auxiliary Flotillas, the UNCW Marine Research Center, and United States Power Squadrons. This committee has several roles that have been established to enhance NWS Wilmington's marine forecast program.

The primary role of the CMAC is to provide feedback on the weather related needs of the marine community. The committee worked together on developing safety messages for Safe Boating Week (May 18-24). Additional outreach events in which the NWS partnered with CMAC were the North Strand Power and Sail Squadron at the Blue Crab Festival in Little River, SC (May 18-19) and with the Cape Fear Power Squadron and the USCG Wilmington Marine Safety Office at the NC State Port Maritime Festival May 19th.

The committee discussed at length the lack of marine observations in the area and how the "holes" in data can be filled. One result of this discussion was for vessels to call the NWS to report position, wind direction, wind speed, sea height and water temperature. This is especially important since there are currently no marine observations available anywhere in NWS Wilmington's marine forecast area. Once a vessel report is received, it is broadcast over NOAA Weather Radio to share with the rest of the mariners.

Another discussion pertained to marine forecasting problems that NWS forecasters encounter every day. The lack of marine observations was noted as the primary problem, while the change in sea surface temperature was another. The temperature gradient from the near shore waters to the Gulf Stream significantly affects the wind (and subsequent sea growth).

Overall, NWS Wilmington was very pleased with the turn out and dedication of the CMAC members. The CMAC has provided us with

many way to improve our marine program. We look forward to an even stronger relationship in years to come.

Frying Pan Shoals Condemned

Fishermen & recreational boaters will lose a long standing marine fixture later this spring or early summer. The Frying Pan Shoals Light Tower, which has been a beacon for many years off the Cape Fear Coast, has been condemned and set to be demolished.

The Frying Shoals Light Tower, which sits on a "Texas Tower" platform, was installed in the 1960s. The tower was installed to replace 112 years of lightship work. The tower had a crew of six to nine people until it was automated in the late 1970s. Later on weather equipment was added by the National Data Buoy Center. This instrumentation measures wind speed, wave height, wave period and reports wind direction.

Although the area will be losing a maritime icon, the National Data Buoy Center has plans to replace the weather equipment that currently resides on Frying Pan. A three meter discus buoy will eventually be deployed to replace the data that will be lost when Frying Pan is demolished. Once this data is available, it will be broadcast on NOAA Weather Radio and it will be available on the internet at: **http://weather.noaa.gov/ilm** under the marine section.

Amateur Radio: Communicating Here and Around the World

Amateur Radio: Communicating Here and Around the World is the title of an exhibit sponsored by the Robeson County Amateur Radio Society (RCARS) at the Robeson County Museum in Lumberton, NC. The large, three-room exhibit opened in November of 2001 and continued through early May of this year.

RCARS, an affiliate of the Amateur Radio Relay League and Amateur Radio Emergency Services, provides backup communications when Robeson County's main communications systems are disrupted by severe weather, disasters and other catastrophic events.

Much of the equipment on display in the museum exhibit is from the collection of the Reverend James MacLeod (W4NHV), an amateur operator for over 50 years and an avid collector of vintage amateur equipment. The extensive collection chronicles the history of amateur radio from the days of vacuum tubes and gigantic teletype (RTTY) machines to modern transistorized miniaturization. Included are a number of "home-brew" radios built by MacLeod during his early years in amateur radio.

The museum exhibit also featured four fully operational stations including HF, VHF FM and APRS. Society members were on hand for scheduled group tours to provide live demonstrations of amateur radio communications.

SKYWARN and the role of amateur radio operators assisting the National Weather Service during severe weather events occupied a prominent position in museum exhibit. Informational materials for all ages provided by the NWS Wilmington Forecast Office were available for visitors. Severe weather photographs on display included a striking image of the tornado that struck downtown Myrtle Beach in 2001.

The Robeson County Museum exhibit formally opened November 8th with a reception for the Museum Associates and a large number of invited guests, including government and civic leaders. Following an invocation given by the Reverend Norvin Forester (K5FMV) via two-meter amateur radio from his home in Maxton, NC, the attendees were guided through the museum exhibit with

presentations in each area by RCARS members.

Henry McDuffie, Assistant SKYWARN EC for the western portion of the Wilmington NWS coverage area, explained SKYWARN and its importance to the local region. During the evening, guests visiting the SKWYARN display were treated to a computer-based slide show of severe weather events including images of hurricanes, tornadoes and flooding here in NC.

During the run of the museum exhibit, tours hosted by RCARS members were scheduled for many local groups including Boy Scouts, Girl Scouts, civic clubs, community organizations and church groups. Many of these visitors enjoyed their first opportunity to see amateur radio stations in actual operation.

In the words of Jim MacLeod, speaking for all the members of the Robeson County Amateur Radio Society, "Communication is our hobby and our love and our toys. But we are also an emergency tool, dedicated and ready to spring into action when we are called upon."

Climate Corner

The Eastern Carolinas experienced above normal temperatures, and below normal rainfall amounts overall for the winter months of December, January and February. Region wide, December was the warmest winter month with temperatures averaging 6.1 degrees above normal. January was slightly cooler with temperatures averaging 3.6 degrees above normal. In February, winter finally kicked in with temperature averaging only .7 degrees above normal.

Precipitation across the Eastern Carolinas continued well below normal. Region wide, it was a dry December and January with precipitation averaging nearly two and a quarter inches below normal. February wasn't much wetter with averages region wide still a little over an inch an a half below normal. The first week of January saw the areas first significant snowfall event of 2002. The heaviest snow fell from Hartsville and Bennettesville, east across Robeson county, then into northern Pender county. This area received about 4 to 5 inches of mostly snow, with some ice accumulations added in. Snowfall along the coast ranged from three quarters of an inch in South Carolina, to around 2 inches in North Carolina. Drought conditions were moderate to severe in South Carolina, and moderate in North Carolina during December, January and February.

The past year of 2001 was one of the warmest and driest on record. For example, the total rainfall received at the Wilmington National Weather Service Forecast Office in 2001 was 37.98 inches, 16.29 inches below normal. Although this was the driest year in 30 years, it was not the driest ever recorded. In 1909, Wilmington only received 27.68 inches of rainfall. Although it was a warm 2001, it was not excessively so. Average temperatures at Wilmington were 64.1 degrees, which was only .5 degrees warmer than normal. Eleven of the past 30 years have seen temperatures even warmer than that.

Dillon and Pender Counties Join the StormReady Community

County Emergency Managers are working with the National Weather Service to prepare for dangerous weather. During May, Pender and Dillon counties were recognized as StormReady.

In our area, Robeson, Dillon, Pender, Brunswick, Horry and New Hanover Counties have been formally recognized for meeting the StormReady requirements, and applications are being considered from Marion, Columbus and Bladen Counties.

Nationwide, about 350 counties and communities have been recognized as StormReady.

StormReady requirements include:

1. 24 hour communications capability and an Emergency Operations Center
2. Multiple means of receiving NWS warnings
3. Local weather monitoring capability, storm spotter training
4. Warning dissemination - weather radios in public buildings, schools, etc; TV overrides
5. Public preparedness campaigns, safety talks
6. Administrative - Hazardous Weather action plan and drills to test plan

The StormReady program is a guide for counties to prepare and stay prepared - recognition is for three years, and must then be renewed. For more information on the program, call me, Tom Matheson at 910-762-8043 or see this website: http://www.nws.noaa.gov/stormready/

What's up with this Hurricane Season?

When we think of hurricanes, images come to mind of howling wind, snapping trees and flying roofs, giant ocean waves and storm surge...as was caused by Fran. For some of us the flooding from Floyd is the most vivid recollection...it was "Flood Floyd", not hurricane Floyd.

A hurricane is a very efficient system, like a forest fire or a giant jet engine that exhausts heat away from the ocean to the upper atmosphere. It is a beautiful process to see...the only thing that makes it a disaster is humans who are not prepared. The problem is that we cannot do enough to be prepared! Whatever we do is never enough!

A hurricane requires an incubator-like environment to form - tropical heat and humidity with little wind to interfere with the formation process. The ocean must be very warm and the upper atmosphere must be able to receive the heat. All of the ingredients will be there and this season looks fairly active, but the warming of the Central and Eastern Pacific Ocean, or El Nino is expected to cause high altitude westerlies across the tropics that may inhibit the development of major (Category 3+) hurricanes.

For the Carolinas, a land falling storm develops in a west-moving tropical atmospheric wave from Africa that turns north, hitting the coast before it gets caught in the middle-latitude westerlies and steered out to sea. It is expected that the steering winds will not be as strong this year as in the recent past, with a greater likelihood that the East Coast will be hit.

However, many people die and great damage is caused not by storms that hit the East Coast, but instead by storms that make landfall on the Gulf of Mexico coast and move inland across the Carolinas, dumping heavy rain and causing flooding. These storms usually don't get as much local attention as those over the Atlantic Ocean, and for many the local results are shocking.

The *New* National Weather Service

We mean it this time - in fact it is so new it isn't even here yet! We are continually re-inventing the NWS, experimenting with new computer systems, techniques, and ways to convey the information that we are charged to provide to protect life and property and enhance the national economy.

Until 20 years ago, forecasts were made by drawing maps, and with the "guidance" of primitive computer models, the forecaster would type a two to three day forecast and send it out on teletype. Satellite imagery was new, and radar was observed in a dark room. Since then, incremental leaps in atmospheric computer modeling have allowed us to forecast with greater confidence out to seven days,

and with radar and satellite development at a high level of sophistication, we are better able to issue short-fuse warnings.

But the real leap is now! We aren't typing forecasts any longer. Instead, we are entering information into a digital database in hourly increments for 3mi x 3mi grid boxes across the area, including the coastal waters, describing sky cover, precipitation probability...type and amount, winds, temperature, dew point, and ocean waves...for the next week! Once we finish "populating" the grids, the computer "writes" the forecast and generates pictures that we show on the internet. We use the digital database to make twice-daily fire weather forecasts, and in the future, we will use it to make aviation forecasts and more.

The digital database is still in its infancy. The eastern states in the National Weather Service are leading this development, and it is still in its growing pains, in all respects...from computers to wording of forecasts. With continuing development, it is expected that by late next year, the National Digital Forecast Database will be a reality. With the click of a mouse on grid boxes 1/4 the size they are now, anybody will be able to get the specific information they need for wherever they want in the United States.

New NOAA Weather Radio Voice

The National Weather Service has selected new, improved voices for NOAA Weather Radio. These voices are more understandable and human-sounding than the current voice, and will help NWS to deliver warnings, watches, forecasts, and other hazard information more quickly and accurately. The two new voices, one male and one female, will be installed this summer, after we have localized the pronunciation dictionary. We look forward to hearing your comments.

Why Hurricanes Are Named

Experience shows that the use of short, distinctive given names, in written as well as spoken communications, is quicker and less subject to error than the older more cumbersome latitude-longitude identification methods. These advantages are especially important in exchanging detailed storm information between hundreds of widely scattered stations, airports, coastal bases, and ships at sea.

The use of easily remembered names greatly reduces confusion when two or more tropical storms occur at the same time. For example, one hurricane can be moving slowly westward in the Gulf of Mexico, while at exactly the same time another hurricane can be moving rapidly northward along the Atlantic coast. In the past, confusion and false rumors have arisen when storm advisories broadcast from one radio station were mistaken for warnings concerning an entirely different storm located hundreds of miles away.

The name lists have an international flavor because hurricanes affect other nations and are tracked by the public and weather services of countries other than the United States. Names for these lists are selected from library sources and agreed upon by nations involved during the international meetings of the World Meteorological Organization.

2002 tropical storm names are:

Arthur, Bertha, Cristobal, Dolly, Edouard, Fay, Gustav, Hanna, Isidore, Josephine, Kyle, Lili, Marco, Nana, Omar, Paloma, Rene, Sally, Teddy, Vicky, Wilfred

A Potpourri of Weather Sayings

Insects flying in numbers just at evening show weather changing to rain.

Ants that move their eggs and climb,
Rain is coming anytime.

When the glowworm light her lamp,
The air is always damp.

If spiders undo their webs, temptest will follow.

If toads come out of their holes in great numbers, it will rain soon.

When fish hook well, and when they are hard to haul up, it is a sign of wind.

When trout refuse bait or fly,
There ever is a storm a-neigh

Before the storm the crab his briny home
Sidelong forsakes, and strives on land to roam.

When many jellyfish appear in the sea,
a period of storm will follow.

If a crow hollers in the morning, expect rain by night.

Seagull, seagull, sit on the sand,
Its never good weather while you're on the land.

Swallows fly high:clear blue sky;
Swallows fly low:rain we shall know

Rabbits go to the woods before a severe storm.

When a storm is coming cattle will go under a tree if it is
to be a shower but will continue to graze if it will be a long rain.

When cattle stand with their backs to the wind, rain is coming.

When pigs carry sticks, the clouds will play tricks;
When they lie in the mud, no fears of a flood.

If you see sparks when stroking a cat's back, the weather will change soon.

If a cat scratches itself on the fence, expect rain before night.

Dogs' tails straighten when rain is near.

A dog rolling on the ground is a sign of violent winds.

Remember always that everything on this small planet is affected by weather in some way, so everything has the potential to be a weather sign.

	DEC		JAN		FEB		WINTER	
	TMP DEP	RAIN/DEP	TMP/DEP	RAIN/DEP	TMP/DEP	RAIN/DEP	TMP/DEP	RAIN/DEP
WILMINGTON	53.9 / 5.4	1.31/-2.32	48.9/ 2.8	1.82/-2.70	48.9/ 0.4	1.98/-1.68	50.6/ 2.9	1.70/-2.23
NORTH MYRTLE BEACH	54.2 / 6.7	2.30/-1.00	48.5/ 4.7	0.77/-2.89	48.4/ 0.5	2.24/-1.26	50.4/ 4.0	1.77/-1.72
FLORENCE	52.5 / 5.1	0.42/-2.72	47.8/ 2.8	1.65/-2.44	48.4/-0.1	1.57/-1.45	49.6/ 2.6	1.21/-2.20
LUMBERTON	51.0/ 7.3	0.50/-2.72	46.0/ 3.9	3.32/-0.97	46.8/ 1.8	1.78/-1.79	47.9/ 4.3	1.87/-1.83
OVERALL REGION WIDE	52.9/ 6.1	1.13/-2.19	47.8/ 3.6	1.89/-2.25	48.1/ 0.7	1.89/-1.55	49.6/ 3.5	1.64/-2.00

+/- .1 DUE TO ROUNDING

Atlantic Hurricane Probability - NWS

There is a 45% probability of a near-normal Atlantic hurricane season in 2002, a 35% probability of an above-normal season, and a 20% chance of a below-normal season, according to a consensus of scientists at the National Oceanic and Atmospheric Administration's (NOAA) Climate Prediction Center (CPC), the Hurricane Research Division (HRD), and the National Hurricane Center (NHC). This outlook represents the mixed combination of weak El Niño conditions and ongoing decadal-scale anomalies that are more conducive to an above-normal season.

The projected 2002 activity is centered approximately on the border between a near normal and an above-normal season, with a somewhat higher probability of being in the near-normal range. The 2002 season is not expected to be extremely active, as was observed during four of the last six seasons (1995, 1996, 1998, 1999). However, it is expected to be more active than most of the relatively quiet 1971-1994 period.